

CLAIMS

Claim 1. A method of modifying the hydraulic circuitry of an automotive transmission including a flow control valve, a pressure regulator valve, and a fluid passageway and coupling said flow control valve and said pressure regulator valve in fluid communication; said flow control valve, said pressure regulator valve, and said fluid passageway being arranged such that fluid flowing through said flow control valve is applied to said pressure regulator valve through said fluid passageway for establishing a line pressure of said hydraulic circuitry;

said method comprising the step of controlling the flow of fluid from said flow control valve to said pressure regulator valve for controlling the fluid pressure applied to said pressure regulator valve.

Claim 2. The method as claimed in Claim 1 wherein the step of controlling the fluid pressure applied to said pressure regulator valve includes the step of controlling the line pressure of the hydraulic circuitry.

Claim 3. The method as claimed in Claim 1 further including the step of adjusting the flow of fluid from said flow control valve to said pressure regulator valve.

Claim 4. The method as claimed in Claim 3 wherein the step of adjusting the flow of fluid from said flow control valve to said pressure regulator valve includes the step of adjusting the line pressure of the hydraulic circuitry.

Claim 5. The method as claimed in Claim 1 wherein the step of controlling the flow of fluid from said flow control valve to said pressure regulator valve includes the step of providing flow control means in said flow control valve for controlling flow of fluid from said flow control valve into said fluid passageway.

Claim 6. The method as claimed in Claim 5 wherein said flow control means includes a check ball.

Claim 7. The method as claimed in Claim 6 further including the step of providing a resilient element for exerting a force against said check ball in a direction opposing flow of fluid through said flow control valve.

Claim 8. The method as claimed in Claim 7 further including the step of providing an exhaust at one end of said flow control valve for exhausting of fluid from said flow control valve after a predetermined fluid pressure in said flow control valve has been attained.

Claim 9. The method as claimed in Claim 5 further including the step of adjusting the flow of fluid from said flow control

valve into said fluid passageway by adjusting said flow control means

Claim 10. The method as claimed in Claim 7 further including the step of adjusting the flow of fluid from said flow control valve into said fluid passageway by adjusting the force applied to said check ball by said resilient element.

Claim 11. A method of modifying the hydraulic circuitry of a factory installed Allison automotive transmission including a C2 clutch pack, and a piston adapted to exert a force on a C2 clutch for applying said C2 clutch; said factory installed transmission defining an inner chamber for said C2 clutch and said piston, and an outer chamber surrounding said inner chamber; said outer chamber defining a vent opening therein;

said method comprising the step of providing an opening between said inner and outer chambers to permit flow of fluid from said inner chamber into said outer chamber.

Claim 12. The method as claimed in Claim 11 further including the step of reducing the size of said vent opening defined in said outer chamber of said factory installed transmission.

Claim 13. The method as claimed in Claim 11 further including the step of controlling movement of said piston by the flow of fluid between said inner and outer chambers.

Claim 14. The method as claimed in Claim 12 further including the step of controlling movement of said piston by fluid in said outer chamber.

Claim 15. The method as claimed in Claim 14 further including the step of arranging said opening between said inner and outer chambers, and said vent opening in said outer chamber, such that the force applied by said piston to said C2 clutch is increased above that of the factory installed transmission to prevent slippage of said C2 clutch.

Claim 16. The method as claimed in Claim 15 wherein said step of arranging includes the step of preventing abrupt application of force by said piston to said C2 clutch.

Claim 17. A method of modifying the hydraulic circuitry of a factory installed Allison automotive transmission including a trim solenoid for applying fluid pressure to a trim valve, said trim valve coupled to a source of clutch fluid pressure for opposing the fluid pressure applied by said trim solenoid for moving said trim valve into a position in which it blocks said source of clutch fluid pressure for establishing a predetermined maximum clutch pressure for said factory installed transmission;

said method comprising the step of reducing the clutch fluid pressure applied to said trim valve for preventing said trim valve from moving into said position in which it blocks said source of clutch pressure, whereby said maximum clutch pressure is increased above that of said factory installed transmission.

Claim 18. The method as claimed in Claim 17 wherein said step of reducing the clutch fluid pressure applied to said trim valve comprises the step of replacing said factory installed trim valve with an outer trim valve component and an inner trim valve component received within said outer trim valve component.

Claim 19. The method as claimed in Claim 18 further including the step of defining a first opening in said outer valve component and a second opening in said inner valve component.

Claim 20. The method as claimed in Claim 19 further including the steps of applying fluid pressure by said trim solenoid to said inner valve component to move said inner valve component in a first direction, and applying clutch fluid pressure to said outer valve component to move said outer valve component in a second direction opposite to said first direction, whereby said outer and inner valve components move relative to each other in opposite directions.

Claim 21. The method as claimed in Claim 20 further including the steps of moving said inner valve component relative to said outer valve component so as to move said first opening in said outer valve component into alignment with said second opening in said inner valve component; and exhausting said clutch fluid pressure through said first and second openings, and through said inner valve component, to reduce the clutch fluid pressure applied to said outer valve component for preventing further movement of said outer valve component to block said source of clutch pressure.

Claim 22. The method as claimed in Claim 21 further including the step of applying a resilient force to said inner valve component in a direction to oppose the fluid pressure applied to said inner valve component by said trim solenoid.

Claim 23. The method as claimed in Claim 22 further including the step of adjusting the resilient force applied to said inner valve component to adjust the net force applied to said inner valve component for adjusting the movement of said inner valve component in said first direction relative to the movement of said outer valve component in said second opposed direction.

Claim 24. The method as claimed in Claim 17 wherein the step of reducing the clutch fluid pressure applied to said trim valve comprises the step of defining a bore in said trim valve.

Claim 25. The method as claimed in Claim 24 wherein said bore defined in said trim valve is in fluid communication with said source of clutch fluid pressure,

said method comprising the further step of providing a blocking element to prevent flow of said clutch fluid through said bore in said trim valve when the pressure of said clutch fluid is below a predetermined value.

Claim 26. The method as claimed in Claim 25 further including the step of displacing said blocking element to permit flow of clutch fluid through said bore in said trim valve when said clutch pressure meets or exceeds said predetermined value.

Claim 27. The method as claimed in Claim 26 further including the step of exhausting said clutch fluid through said bore in said trim valve to reduce the clutch fluid pressure applied to said trim valve.

Claim 28. The method as claimed in Claim 25 wherein said blocking element is a check ball.

Claim 29. The method as claimed in Claim 28 further including the step of applying a resilient force on said check ball in a direction opposed to the clutch fluid pressure applied to said check ball.

Claim 30. The method as claimed in Claim 29 further including the step of adjusting the resilient force applied to said check ball to adjust the predetermined value of said clutch pressure necessary to displace said check ball to permit flow of clutch fluid through said bore in said trim valve.

Claim 31. The method as claimed in Claim 17 wherein said trim valve is a A trim valve, and said trim solenoid is a A trim solenoid.

Claim 32. The method as claimed in Claim 17 wherein said trim valve is a B trim valve, and said trim solenoid is a B trim solenoid.